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THESIS

**A FEASIBILITY STUDY INTO THE USE OF A SINGLE LOCAL
FINANCIAL MANAGEMENT SYSTEM FOR THE
DEPARTMENT OF THE NAVY**

by

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June 1997

Principal Advisor:

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LOCAL FINANCIAL MANAGEMENT SYSTEM FOR THE
DEPARTMENT OF THE NAVY**

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Lieutenant, United States Navy
B.S., Northeast Missouri State University, 1986

Submitted in partial fulfillment of the
requirements for the degree of

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from the

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ABSTRACT

This thesis investigated the feasibility of implementing a single Navy-wide local financial management system. In this era of downsizing and budget cuts, the government is looking for opportunities to spend funds more efficiently. One initiative which is starting to pay dividends is consolidating finance and accounting systems. The Navy-wide implementation of the Standard Accounting and Reporting System family of accounting systems is nearly complete. This system, however, provides no financial management capability to local managers. These managers must independently organize their local financial management systems.

This thesis evaluated the feasibility of taking this consolidation process one step further, to the local level. It used the Fund Administration and Standardized Document Automation System (FASTDATA) local financial management system as a baseline for analysis. It evaluated the system's capabilities and its acceptability by operational users.

It was determined by the research that a single Navy-wide local financial management system is feasible. FASTDATA performed extremely well and users find it to be a very acceptable system. FASTDATA has the potential to fill the role as the Navy-wide local financial management system. However, several technological upgrades will need to be incorporated.

The first part of the book is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The second part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The third part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The fourth part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The fifth part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The sixth part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The seventh part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The eighth part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The ninth part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x . The tenth part of the book is devoted to the study of the properties of the function $f(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$. It is shown that this function is the exponential function e^x .

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I. INTRODUCTION

A. PURPOSE

This thesis examines the feasibility of implementing a single Navy-wide local financial management system for the general fund. It uses the Fund Administration and Standardized Document Automation System (FASTDATA) as a baseline. FASTDATA is a widely used system that is being sponsored by the Assistant Secretary of the Navy for Financial Management and Comptroller (ASN(FM&C)). The thesis will also make recommendations for modifying FASTDATA, to make it a more universally accepted system. In addition, this thesis will evaluate whether the FASTDATA system is an acceptable system for implementation at the Naval Postgraduate School (NPS).

B. BACKGROUND

In the past, each of the three military departments and the other major governmental agencies developed and implemented their own accounting, budgeting, and financial management systems. This freedom of operation lead to numerous specialized systems that were incapable of communicating with one another. In 1990, there were 878 independent finance and accounting systems maintained within Federal Government Agencies [Ref. 1:p. 104].

In 1991, the Defense Finance and Accounting Service (DFAS) was created to streamline and standardize the Department of Defense (DoD) finance and accounting procedures, systems and operations; while reducing the cost of those services. At that time, there were 91 general fund systems used by DoD. DFAS planned to reduce this number to 11 migratory systems. DFAS selected the Standard Accounting and Reporting System (STARS) and later selected it's local accounting module, STARS Field Level (STARS-FL), to serve as the Navy's migratory system for general fund accounting. At present, STARS-FL has been implemented at nearly all Navy shore activities.

STARS has received much criticism from various sources. One of the major criticisms from the field activity level is that the system does not provide field level management with adequate tools to efficiently manage local financial resources. There are no standard accounting systems to fill this requirement. Field level managers are forced to use additional systems to provide local finance and accounting controls. Essentially, each individual command is responsible for developing its own financial management system for appropriated funds. Commands need a uniform system to collect, validate and manipulate financial data prior to its introduction to the official STARS-FL accounting system. FASTDATA is filling this gap in many organizations.

C. SCOPE

This research will address local financial management information systems and the desirability and feasibility of using a single system. As a means of examining this broad area of concern, it will focus on the FASTDATA system. The positive attributes and the shortcomings of the FASTDATA system will be thoroughly examined. If the shortcomings are universally the same throughout various types of commands, then an assumption could be made that correcting these shortcomings would produce a system that could be implemented Navy-wide.

The FASTDATA system has only recently been transferred to the Navy's management control. Because of this, many funding requirements have not yet been identified. Specifically, cost data associated with system implementation and training are limited. This fact has limited the scope of this evaluation of FASTDATA to non-financial attributes.

D. METHODOLOGY

This thesis uses archival research and opinion research. The first step was to obtain a thorough understanding of the FASTDATA system and the larger Navy-wide finance and accounting structure in which it operates. This was accomplished by studying published and unpublished information from various sources, including general

literature, government commissions, government agencies, and past Naval Postgraduate School theses.

The second step was to obtain the opinions of Fund Administrators (FA) and end users of the FASTDATA system at operational commands. This opinion information was obtained through 21 personnel interviews involving six commands in the San Diego and San Francisco areas [Ref. 2 to 22]. Two commands which have evaluated but not yet implemented the FASTDATA system were also included. The personnel interviewed included 13 accounting personnel who work within the comptrollers' shops and eight Site personnel who worked in other functional areas.

Each interview commenced by asking the interviewees to describe how FASTDATA was used within their command. This provided information on the level to which the command had implemented the system. They were asked to provide their general opinion as to whether the system actually performed as stated in the user manuals and whether it was a useful tool in local financial management. This provided an overall evaluation of the system. Finally, the interviewees were asked to describe problems that they encountered with FASTDATA and provide recommendations for modifying and upgrading the system. Relevant information from these sources was compiled to understand the subject and conduct a comprehensive analysis.

E. ORGANIZATION

This thesis is divided into five chapters. Chapter I provides the introduction and outline of the thesis. Chapter II provides a brief description of the background, the current environment and trends of governmental finance and accounting systems. Chapter III discusses the history, procedures and the status of the FASTDATA system. Chapter IV provides an analysis of the opinion data and summarizes the findings of the research. Chapter V includes a summary of the thesis and provides conclusions and recommendations which were developed from the research.

II. GOVERNMENT FINANCE AND ACCOUNTING SYSTEMS

A. INTRODUCTION

This chapter contains a brief history of governmental finance and accounting system development. It then looks at applicable major legislative actions, agency initiatives, and some recent results of these actions. This is followed by a look at the Defense Department's financial reorganization which was a direct result of these initiatives. Finally, the Navy's current official finance and accounting systems are discussed.

B. BACKGROUND OF GOVERNMENTAL ACCOUNTING SYSTEMS

Historically, Federal Government finance and accounting systems, including the systems used by the Department of Defense (DoD), have been organized under a decentralized method of management. Each of the three military departments and the other major agencies were allowed to develop and implement their own accounting, budgeting, and finance systems. Organizations were allotted Operating Budgets (funds) and were accountable for tracking and reporting obligations and expenditures. There was limited direction on how these actions were to be carried out. As funds were distributed down the funding chain, each organization was essentially allowed to develop its own accounting system for funds. The level of financial

control, and the systems that were used, were determined by the individual managers within the funding chain of command.

This lack of national standards and freedom of operations lead to numerous specialized systems that were incapable of communicating with one another. As computer capabilities increased, more and more systems were added with no centralized direction or standards. As system interoperability became increasingly important, new interfacing systems were developed to connect these systems. Rather than using computer technology at the macro level to re-engineer the overall business process, each organization developed micro level systems to accomplish tasks in their limited area of responsibility.

The number of systems continued to grow. In fiscal year 1991, government agencies reported operating 878 individual financial management and accounting systems, most of which were antiquated, incompatible and redundant [Ref. 23:p. 4]. In January 1991, there were approximately 250 independent financial management and accounting systems maintained within DoD alone [Ref. 1:p 104].

C. REFORM LEGISLATION AND INITIATIVES

In the 1980's, with the national debt sky-rocketing, government agencies were under growing pressure to gain control of their financial situation. The end of the Cold War and the Defense draw-down placed additional pressure on

DoD to develop systems which would properly manage its funds. Legislative actions as well as lower level agency initiatives were introduced to contend with the problem.

1. The Federal Managers' Financial Integrity Act of 1982

The Federal Managers' Financial Integrity Act of 1982 (FMFIA) was an attempt to reform government financial management. It requires all department and agency managers to identify internal control and accounting system weaknesses that could lead to fraud, waste and abuse in government operations. These weaknesses, plus the actions taken to correct them, were to be reported annually to the President and Congress. This act brought added attention to the growing problem, but with no organization centrally responsible for finance and accounting systems, it had limited impact [Ref. 24:p. 3].

2. The Chief Financial Officers Act of 1990

The Chief Financial Officers Act of 1990 (CFO Act) was enacted as part of the long-term, comprehensive strategy to improve federal government performance in financial management. It created sweeping financial changes for DoD as well as nearly every other Federal agency. One of the leading problems with the old system was that no organization had clear-cut responsibility for overseeing and directing governmental financial management operations. Administrative functions were split between the Office of

Management and Budget (OMB), the Department of the Treasury and the General Services Administration.

The CFO Act established a centralized financial management structure, headed within the OMB by the Chief Financial Officer (CFO) of the United States. This individual is appointed by the President and approved by the Senate. The Act also required each major department and agency, including DoD, to establish a CFO who would report to the CFO of the United States. These actions established a strong centralized organization and empowered the CFO of the United States to demand that agencies make tough choices or risk losses at the budget table.

In addition to structural changes, the CFO Act requires DoD and the other agencies to improve their financial management and reporting operations. Specifically, it required each agency CFO to develop an integrated agency accounting and financial management system, including financial reporting and internal controls. It set the stage to move toward financial statements that classify costs by program, provide corresponding measures of program performance and project future liabilities and returns on investments [Ref. 25].

3. The Government Management Reform Act of 1994

The Government Management Reform Act of 1994 (GMRA) recognized the benefits of audited financial statements. It expanded the CFO Act by requiring all agencies governed by

the CFO Act to annually prepare and have audited agency-wide financial statements. These requirements were to begin in fiscal year 1996. GMRA further required that a government-wide financial statement be prepared and audited for fiscal year 1997 [Ref. 26:p. 5].

4. Office of Management and Budget Circular A-127

With the power granted from the CFO Act, OMB added further direction with the publication of OMB Circular A-127. It required each agency to establish and maintain a single, integrated, financial management system that was consistent with the Government Standard General Ledger. OMB defined a single, integrated financial management system as a unified set of financial systems, non-financial systems, and mixed systems. These systems are planned and managed together, operated in an integrated fashion and linked electronically to provide agency-wide financial system support [Ref. 27:p. 3].

5. Joint Financial Management Improvement Program

The Joint Financial Management Improvement Program (JFMIP) is a cooperative effort of OMB, the General Accounting Office (GAO), Office of Personnel Management and the Department of the Treasury. These offices are working collectively with other Federal agencies to improve financial management practices throughout the government. JFMIP publishes documents to provide overall objectives and strategies for improving financial management in the federal

government. The JFMIP system architecture is based on the policy set by OMB Circular A-127 [Ref. 27:p. 3].

6. DoD Corporate Information Management Initiative

In 1990, the DoD initiated the Corporate Information Management (CIM) initiative. This was one of the first documents that demonstrated DoD's shift from individual automated information systems developed to meet component-specific requirements to a single system developed to meet DoD-wide requirements. A major element of CIM was an initiative to implement migratory systems for functional areas on a DoD-wide basis, while reducing the overall number of systems [Ref. 28].

7. Defense Management Review Decision 910

The Defense Management Review Decision on Finance and Accounting 910 (DMRD 910) gave initial direction for the Defense Finance and Accounting Service (DFAS) to capitalize and assume responsibility for all finance and accounting functions and regulations throughout DoD [Ref. 27:p. 3].

These legislative actions and agency initiative have lead to vast changes in DoD financial management. One of the most striking changes was to consolidate all DoD accounting offices under a single organization.

D. DEFENSE FINANCE AND ACCOUNTING SERVICE

In 1991, DFAS was created to streamline and standardize DoD's finance and accounting procedures, systems and operations while reducing the cost of those services. Under direction from DMRD 910, DFAS capitalized finance and accounting functions within DoD, assumed responsibility for all finance and accounting regulations and consolidation efforts, and established an implementation group. The implementation group initially established several goals. Two of the goals were to consolidate and reduce the number of field activities and decrease the number of finance and accounting systems.

DFAS was very successful in decreasing the number of locations. When it was established, DoD operated over 300 field accounting activities or sites. This number has already been streamlined significantly; DFAS expects to operate only five centers and 21 Operating Locations by fiscal year 1999. The five centers correspond to the service components that they had previously served. The Navy's primary accounting center is DFAS Cleveland Center (DFAS-CL).

To correct known deficiencies and reduce the number of finance and accounting systems, DFAS established a two-phased restructuring plan. Phase one was to designate existing systems as migratory systems for each functional area. Into these migratory systems, all existing systems

conducting similar functions would be consolidated. The best features of the existing systems would be incorporated into the migratory systems and any residual deficiencies would be identified and corrected. Phase two called for developing optimum follow-on systems, based on lessons learned from the migratory systems. These optimum systems would incorporate the latest available technology.

In choosing the migratory systems, DFAS set specific selection criteria. They required that the system be fully operational or be in the advanced stages of development and at least partially implemented. The system had to be adaptable to meet 13 key accounting requirements and be able to implement standard Budget Accounting Classification Codes (BACC) established by DFAS. The 13 key accounting requirements are listed in Appendix A.

Phase one of the modernization initiative has worked well for systems in some functional areas. Several systems have been selected and are in the process of being implemented DoD-wide. The Defense Civilian Payroll System (DCPS) will be fully implemented by the end of this year; DCPS will control the pay for all DoD civilians and replace 27 payroll systems. The Defense Joint Military Pay System (DJMS) will be fully implemented in 1999; it will control the pay for all Army, Navy and Air Force personnel. DJMS, along with a single Marine Corps system, will replace 22 systems. The Defense Retiree and Annuitant System (DRAS)

has been in full operation since FY 1995; it manages over two million accounts and replaced eight systems. The Defense Debt Management System (DDMS) has been operating since 1993. It standardized debt collection from military and civilian personnel not on active DFAS payrolls. It replaced five accounting systems. [Ref. 29:p. 6] Although this process has worked well for some specific functional systems, it has not been as successful with all funds.

The general fund systems are much more complex than the aforementioned systems. In 1991, there were 91 individual general fund systems within DoD. The Corps of Engineers Financial Management System (CEFMS) was originally selected as the most feasible system for DoD-wide implementation. However, it was rejected because it was still in the early stages of production and did not meet the requirement of a proven operational system. No system was available that met all DFAS selection requirements. Consequently, DFAS developed a separate implementation plan for the general fund. The General Fund Interim Migratory Accounting Strategy allowed each military service to develop component-unique systems.

In December 1993, the DFAS centers selected 11 migratory systems to replace the 91 existing systems. Choices were based on the military component that each center primarily supported. DFAS Cleveland Center originally selected three systems as migratory systems. The Centralized Expenditure and

Reimbursement Processing System (CERPS) was selected as a special purpose system used by all of the components for department-level automated expenditure reporting and reconciliation. For the Navy's general fund migratory accounting system, DFAS selected the Standard Accounting and Reporting System (STARS). STARS is a financial management and accounting automated processing system. The third system selected was the Fund Administration and Standardized Document Automation System (FASTDATA). It is an input system designed to generate source documents and financial information for field-level managers. It also was selected as a front-end data entry system for STARS.

E. STANDARD ACCOUNTING AND REPORTING SYSTEM

STARS was selected as the "least deficient" of the Navy's 25 existing systems. STARS is a series of computer modules, including a Headquarters Claimant Module, a Claimant Accounting Module, a Field-Level accounting system (STARS-FL) and a single bill-paying subsystem. STARS is a mainframe based system operated at Mechanicsburg, PA. In June 1994, DFAS determined that FASTDATA was more accurately classified as a local financial management system and it would not be part of the official accounting system. It was replaced by STARS-FL as one of the Navy's interim migratory systems. STARS-FL filled the role of the field-level general fund accounting system. It provides field-level

users on-line, real time access to STARS. It has been implemented in nearly all Navy shore activities.

F. SYSTEM DEFICIENCIES

The General Fund Interim Migratory Accounting Strategy and its implementation have been the focus of much criticism. An Inspector General's Audit Report stated that the DoD strategy would duplicate efforts by migrating to multiple, component-unique systems. The report recommended that DoD scrap the multi-system plan and pool all available funds to produce a single DoD-wide system. It also reported that the strategy did not fully support either the DoD CIM initiative or the DMRD 910, nor did it meet the requirements of OMB Circular A-127 and the JFMIP [Ref. 27:p. i].

In a General Accounting Office (GAO) report, the Navy was criticized for making little progress in improving its general funds financial management and reporting system since passage of the CFO Act [Ref. 26:p. 1]. Another GAO report stated that DFAS plans to enhance STARS without a target system architecture. This architecture is required to define the system's expected functions, features, and attributes [Ref. 24:p. 1]. DFAS and the Navy have responded to these criticisms by sighting the substantial progress that has been made in the years since DFAS was commissioned. They also have noted that changes must be made without shutting down the system, and that continuous ongoing

improvements are much less risky than complete system overhauls. For the near future, STARS-FL will continue to be the Navy's official accounting system.

STARS was originally designed for top level management needs. The STARS-FL module allows direct input from field-level activities throughout the Navy. Processing at the field activities is primarily accomplished by comptroller personnel. STARS-FL is essentially an input device with limited retrieval capability. It was not designed to provide field level management with the capability to manage funds below the comptroller level. Field level managers must establish additional financial management systems to provide local finance, accounting and budgeting controls. There is currently no Navy-wide initiative in place to fill this need.

G. SUMMARY

This chapter looked at the history of Governmental accounting systems, including recent progress and currently used systems. There is a lot of external pressure for DoD to implement a single accounting system. This would undoubtedly change the Navy's current system. However, the Navy will use the STARS and STARS-FL system for the foreseeable future. As long as this is the system of choice, all local managers will need a system to conduct local financial management.

III. FASTDATA FINANCIAL MANAGEMENT SYSTEM

A. INTRODUCTION

Much like systems at the Federal Government level, there has historically been no standardization of the DoD local level financial management systems. This chapter will look at the problems that this lack of standardization causes. It then looks at the history and development of the FASTDATA system. It discusses FASTDATA's current level of implementation. Finally, it gives a brief overview of FASTDATA's processes and procedures.

B. LOCAL SYSTEMS BACKGROUND

Local financial management systems have historically had no central control. Each activity, as well as departments within activities, developed its own method of controlling internal financial management requirements. Methods range from manual handwritten logs to sophisticated commercial software packages. This lack of local level control and commonality has not received the high degree of attention given to the official accounting systems. However, it continues to create extensive inefficiencies throughout the Navy.

Some inefficiencies are unique to individual systems, while others are caused by the lack of uniformity between

systems. Some of the more prevalent inefficiencies in the Navy are as follows [Ref. 30:p. 3]:

- Systems require that data be entered into the accounting system and then re-entered into the procurement system. Duplicate entry of the same information increases both the labor cost and the chance of error.
- Systems do not have adequate controls to ensure that document numbers are not repeated for different requisitions. Duplicate requisition numbers are a major problem and take significant time and effort to correct.
- Some current systems do not allow cost centers to prepare data for direct entry into STARS-FL. This requires skilled accounting technicians to re-enter the data. This causes duplicate entries, labor inefficiencies and potential errors.
- Most systems have no capability to preclude the obligation of funds once the cost center has expended its allotted funds. Many Anti-deficiency Act violations may stem from inadequate internal control of obligations.
- Systems use a variety of methods to create reports for the field level comptrollers which are not standardized into a single, usable format. These inefficiencies make it difficult for accurate and timely information to reach the local comptrollers. This, in turn, means that accurate and timely information will not be entered into STARS-FL.
- As personnel are transferred from one activity to another, they are forced to learn new systems at each activity. This lack of uniformity decreases individual productivity and causes extensive on-the-job re-training costs.

Inaccurate information in source level data will lead to inaccuracies in the official financial management and accounting systems.

C. NAVAL POSTGRADUATE SCHOOL

The Naval Postgraduate School (NPS) suffers from many of the inefficiencies discussed above. Within NPS, many departments have developed their own independent accounting methods. There is no command-wide system in place. Departments currently enter data into the procurement process which is then reentered into STARS-FL by the Comptroller's accounting technicians. There is currently no automated process to restrict the obligation of funds after the departmental OPTARs are depleted. There are currently no systems in place to perform automated audit checks to ensure that duplicate document numbers are not used. FASTDATA was developed to alleviate some of these inefficiencies.

D. FASTDATA BACKGROUND

FASTDATA was originally developed in 1988 by Commander, Naval Reserve Force (COMNAVRESFOR), to standardize its 36 Fund Administrators (FA) and its 650 Sites (Cost Centers). In October 1990, the Assistant Secretary of the Navy, Financial Management and Comptroller (ASN(FM&C)), through the Navy Accounting and Finance Center (NAFC), assumed management responsibility for FASTDATA. The plan was to complete an evaluation of the program, make required modifications and implement the system Navy-wide.

The Financial Systems Activity, Pensacola (now DFAS-FSA) was assigned as the Central Design Activity (CDA) and tasked to perform a technical review and to identify and correct system deficiencies. In October 1991, DFAS-FSA was further tasked to redesign FASTDATA to improve the system's performance, expand functionality beyond the COMNAVRESFOR environment, implement necessary system security functions and provide required system documentation.

In May 1992, as part of the DoD financial restructuring, management control of FASTDATA was transferred to DFAS-CL. DFAS-CL initially directed DFAS-FSA to halt development. However, in December 1993, DFAS included FASTDATA as one of its interim migratory systems. Its primary functions were to serve as the field-level finance and accounting system and as an input device for STARS. In March 1994, DFAS and ASN(FM&C) again endorsed the re-engineering and Navy-wide deployment of FASTDATA.

The most significant changes that took place in the re-engineering process were adding the STARS-FL interface and converting it from its original language to COBOL. The new version of FASTDATA was accepted by DFAS in December 1994. However, in June of that year, STARS-FL had been selected to replace FASTDATA as the field-level migratory system. It was determined that the FASTDATA system would serve only as a local financial management information system and would no longer be considered part of the DFAS official migratory

accounting systems. In August 1996, an agreement was reached to transfer ownership and funding responsibility for FASTDATA back to the Navy. Ownership was transferred to ASN(FM&C) on March 31, 1997.

The FASTDATA system has been implemented in various commands. COMNAVRESFOR is the only major claimant that mandates the use of FASTDATA within its organization. There are, however, numerous other major claimants which have individual commands using the system. FASTDATA is currently in use by approximately 2500 Sites and 100 fund administrators throughout the Navy.

E. SYSTEM REQUIREMENTS AND PROCEDURES

FASTDATA is a microcomputer-based, menu-driven system that allows users to generate source documents, upload batch transactions to STARS-FL and update memorandum records in a single process. The FASTDATA environment consists of two modules, the Fund Administrator Module (FA) and the Site Module [Ref. 31].

The hardware requirements for FASTDATA include one IBM compatible micro-computer for the FA and one for each Site. The FA computer requires 640K of RAM, 10 megabytes of hard drive space, a 3.5 inch disk drive and a MS-DOS operating system, version 3.3 or higher. These requirements are available on most desk top computers used today. The Site requires additional hard drive space, depending on the

number of requisitions processed per year. For a Site which processes more than 11,000 requisitions per year, 25 megabytes of hard drive space are needed for each year of data. Current and five prior years are normally maintained. Multiple sites may be maintained on a single computer. The data flow through the system is primarily accomplished by transferring data via floppy disk. However, Local Area Networks (LANs) and E-mail may also be used to transfer data between the FA and the Sites.

1. Fund Administrator Module

The Fund Administrator Module is maintained by an operator within the comptroller's work center. This module is a control point: it defines and monitors the spending patterns of each Site and the organization as a whole. The FA's main responsibility is to establish and maintain the financial framework. This framework defines which operating targets (OPTARs), authorizations, job order numbers (JONs) and document numbers each Site can use.

The OPTAR is a funding account issued to the Sites for procuring materials and services. Each Site may maintain more than one OPTAR. An authorization is the amount of funding allowed in a particular OPTAR. OPTARs may receive funds through several authorizations, including both direct and reimbursable. JONs are used to accumulate costs for services or materials purchased for a particular purpose. Document numbers are used to track individual obligations.

The FA assigns each Site a unique series of document numbers. FASTDATA uses these numbers to preclude using a number more than once. The Fund Administrator is the only individual who can change these figures once they are set. This gives the Fund Administrator strict control over the process.

The FA provides each Site with its individual financial framework. The Sites download the framework, perform day to day transactions and return the completed transactions to the FA. When the disk or LAN file is received from the Sites, the FA uploads the data and transmits a batch file into STARS-FL. The FA does not need to re-enter any information. The FA conducts all interfacing with STARS-FL and other external accounting systems.

2. Site Module

A Site is any work center that receives funding from the FA. It can be a geographic location, an activity, a department or any organization that requires independent funding. The Site receives the pre-established financial framework from the FA. Once this framework has been uploaded into the Site computer, it is ready to record daily transactions [Ref. 32].

The Site Module contains memorandum accounting records for the Site OPTAR. These provide the user with automated record keeping (basically an automated check book). This system is independent of all other systems, allowing the

Site user to process data regardless of the operational status of other computer systems. Users can instantly access historical data for all Site requisitions. These records are automatically updated as requisitions and status updates are processed.

The Site module uses a series of computer screen presentations that correspond to standard DoD and Navy requirements forms. There are two types of forms: source document forms which can be used in the requisitioning process and memorandum forms which are used only to record transactions in the Site OPTAR. These are listed in Appendix B. The financial framework automatically completes all standard information on each form, including the document serial number. The operator needs only to enter the information that is unique to the individual requirement. This decreases the chances of erroneous data and duplicate document numbers. A built-in audit check can prevent the Site user from further processing when authorized funds have been exhausted. This reduces the chance of over obligating the operating budget.

In addition to automatically updating Site records and creating a file for upload to the FA, source documents can be printed to serve as the requisition document. FASTDATA can also prepare requisition files in the Military Standard Requisitioning and Issue Procedures (MILSTRIP) format. These files can be loaded directly into the Uniform

Automated Data Processing Systems (UADPS), which is used by the Navy Supply System. In addition to requisitioning material, the Site enters data for material receipt, cancellation and disbursement of the transactions. As transactions are created and adjusted, the obligations are rolled up into the appropriate authorizations and OPTARs. All transactions are automatically grouped and coded for transmission and upload to the FA.

F. SUMMARY

This chapter discussed many of the inefficiencies that exist in the non-standardized local financial management systems that are used in the Navy today. It also discussed the FASTDATA system and how it attempts to alleviate some of these problems. Regardless of what system is used, the adage of "garbage-in, garbage-out" applies. STARS and STARS-FL can be perfect systems, but if the input data is flawed then the resulting reports will be in error.

IV. ANALYSIS OF DATA

A. INTRODUCTION

Interviews were conducted to develop opinion data. The interviews were organized to understand the commands' implementation level, FASTDATA's general acceptability and the areas in which it was deficient or needed modification. This chapter discusses the results of these interviews. It discusses the different levels of implementation status. It addresses the opinions of the Fund Administrators and the Site users and gives their overall assessment of FASTDATA. It then discusses recommendations and modifications that were suggested by the users. It also discusses some of the FASTDATA programmers' views on these modifications.

B. IMPLEMENTATION

From the initial set of questions, it quickly became apparent that some commands had not fully implemented the system. There were two basic ways in which the system was being used. Some commands had fully implemented the system as it had been designed; some commands were using FASTDATA in a condensed version.

In particular, four commands were using the system as designed and discussed in the previous chapter. These commands installed the Site modules at remote locations to allow the lowest level users to take full advantage of the

system's capabilities. However, two of the commands were using the system in a condensed manor. FASTDATA was only used within the comptroller's office. The FA and all Site modules were installed on several computers within this office. Initial documentation at the source work center was processed manually. Manual documents were then brought to the comptroller's office and entered into FASTDATA. This gave the comptroller personnel many of the advantages that the system offers, but did nothing to improve processing at the subordinate department level.

C. OVERALL ACCEPTANCE

The overall opinion of the system was extremely positive from both the Site and FA users. The majority of the interviewees stated the system performed as advertised and that it had greatly decreased the workload from their previous systems. They were unanimous in their thoughts: as a command "checkbook", the system performed extremely well.

Site users who worked in nonfinancial areas were especially pleased with the time that the system saved. One seaman apprentice had recently initiated the system within her division. She claimed that the system had reduced her requisition processing time to approximately twenty percent of what it had been when using an old manual system. Another Site user stated that the automated accounting

records eliminated any chance of calculation errors and provided immediate account balance information. At a maintenance organization, which frequently processes over one hundred requisitions per day, a user explained that FASTDATA had replaced their manual logs. This saved them hundreds of man-hours making manual entries for each item ordered. He also stated that, with the UADPS interface, he only needed to prepare two disks: one for the Fund Administrator and one for the Supply Center. No paper was needed.

Comptroller shop personnel were equally happy with the system. An accounting technician claimed that FASTDATA had reduced his duplicate document number errors by eighty percent, and greatly reduced labor costs by eliminating much of the STARS-FL data entry. Nearly all the comptrollers commented on how the system had eliminated much of the data entry within their offices, allowing the accounting technicians to concentrate on more worthwhile activities. Though there were some problems with training, which will be discussed later, many comptrollers felt that it was very easy to install the program and that the Navy/DoD forms format allowed an easy transition from other systems.

One of the commands that had chosen not to implement the system also had positive comments. The Comptroller for this command had attended formal training on the system and felt that the system could greatly improve his organization.

However, he did not feel that the training support was sufficient to proceed with implementation. He stated that if more on-site training was available he would fully implement the system.

Fund Administrators and Site users were equally pleased with the system. Most felt that it had become an indispensable part of their organization.

D. DEFICIENCIES AND MODIFICATIONS

FASTDATA seems to have the ability to perform the functions for which it is currently designed. There were very few deficiencies or inaccuracies in the way the current system works. However, there was no shortage of suggested modifications and upgrades. To gain a better understanding of the complexity and cost of these changes, they were discussed with a representative from the FASTDATA programming office.

In order for a change to be implemented into the system, it has to go through an evaluation process. Modifications are reviewed and recommendations are made by a Configuration Change Board, which includes the Program Manager and five operational comptrollers who use the system. The Program Manager then approves and authorizes the implementation. At the time this document was written, the (ASN(FM&C)) had only recently received management responsibility for the system. Many funding issues and

modification decisions were still being evaluated. Funding had been set aside for fiscal years '98 and '99. However, no funding had yet been made available for the remainder of fiscal year '97.

The suggested modifications along with comments from the programming office are as follows:

1. **Windows Compatible**

A major change that was suggested by every interviewee, both Site and FA, was to convert the system to a Windows based system. Many problems have occurred in the past when operating FASTDATA from Windows. This is because FASTDATA is a DOS based program, which can operate from the Windows operating system, but was not originally designed to do so. For example, some data files have been corrupted and had to be shipped to the FASTDATA programmers for repair. It is also difficult to move between FASTDATA and other applications. Some commands have developed startup and exit programs which allow them to move easily between FASTDATA and Windows based applications. Other commands have resorted to a computer dedicated exclusively to FASTDATA. The system uses 575 of the 640 kilobytes of memory available in DOS. This leaves little room for other applications. Modifying FASTDATA to a Windows compatible system would both fix the application interface problem and make the system more user friendly.

This modification has been extensively evaluated by the FASTDATA program management office. It has developed two alternatives. The first alternative is to incorporate a controlling driver to interface between FASTDATA and Windows. This would introduce some Windows features; however, it would retain the original basic FASTDATA program. The second alternative is to completely rewrite the program in Windows compatible code. This would allow the programmers to upgrade many additional functions and to take full advantage of all Windows features. However, this process would require substantially more funding than the first alternative. No decision has been made to proceed with either of these modifications.

2. Local Area Network (LAN) Based

An upgrade suggested by several personnel was to convert FASTDATA to a LAN based system. Currently, each FASTDATA Site maintains an individual database. If top management desires ad hoc information, then each department has to be queried to retrieve the data. With a LAN system, there could be a single database from which all authorized personnel could draw information. A LAN format would provide management with readily available and up-to-date decision making information. Management would no longer have to retrieve cost information from the departments.

One FA complained that he was processing over 90 disks each week. He stated that, while this was much more

efficient than manual entry, it would be more efficient if the Sites could access a central database directly. A LAN based system could eliminate the time required to upload and download disks, as well as time lost due to corrupt or mishandled disks. The LAN format would increase data input and retrieval capabilities, but would also increase data vulnerability. Password protections would be critical.

This modification would substantially change the base architecture of the program. The program office has not evaluated the cost or feasibility of this option. When the system was first designed, connectability from remote locations was not readily available. Additionally, individual site databases were considered a positive attribute, giving the user continuous access to their automated records. However, technology has progressed to the point that this feature should be reevaluated. If this modification is incorporated, programmers feel that it would take considerable reprogramming and funding.

3. Increased Flexibility

Another prevalent complaint is that the system does not give the FAs enough flexibility. Once entered and uploaded, transactions cannot be deleted or modified. There is no edit capability for these data. Prior year authorizations cannot be modified if they are subsequently changed. Even when entries are completely erroneous, they cannot be deleted. The FAs are responsible for maintaining these

records and need the capability to correct any errors. The only option in FASTDATA is to cancel these erroneous records. However, the erroneous entries will remain in the files as part of the permanent record.

The programmers discussed another side to this argument. Past program managers maintained that any error uploaded to a disk has the potential of getting transmitted into the official accounting system. Even though these transactions were erroneous, they need to remain in the files to maintain the data integrity and act as an audit trail to reconcile the official records. New management has not addressed this issue.

4. Travel Interface

Travel was an area of concern at many commands. There are several computer programs to manage travel. One of the most prevalent is the Automated Travel Order System (ATOS). Though there is an interface between FASTDATA and ATOS, most users consider it inadequate. Many of the interviewees did not use the interface and would like to see it upgraded. One user suggested that FASTDATA incorporate travel forms into its basic functions to replace the multiple travel programs. However the travel system interface is organized, it needs to be standardized and widely implemented.

The programmers are currently working to upgrade and expand the interface between FASTDATA and travel programs. In addition to upgrading the ATOS interface, the programmers

are adding an interface with the Order Writer travel program. Insufficient funding makes it difficult to estimate a completion date.

5. Database Accessibility

Most of the people interviewed stated that the reports provided by FASTDATA were adequate to perform operations. However, several users suggested upgrading FASTDATA to allow the users to draw-down data into a database management file. They would like to be able to load this information into a data presentation program, such as Microsoft Excel. Many users manually transfer information to analysis and presentation programs.

Programmers recommended that the users purchase a commercial program to extract this data. Information Query Corp., located in Norcross GA, is one company which markets a product to perform this function. The product, I.Q., currently costs approximately \$300.00. Because of this relatively inexpensive alternative and uncertain level of need, there are no plans to incorporate this function into FASTDATA.

6. Search Capabilities

Another problem was the inability of users to locate information once it had been entered into the system. A universal search capability would enable the user to use key numbers or phrases to search all data fields. This would help the users to more efficiently access data.

The programmers felt that this was a good idea. This problem, as well as the two that follow, are simply a matter of funding. It was also pointed out that this problem, and others, would be eliminated if the system was rewritten into a Windows based program.

7. Standard Forms

Overall the users were satisfied with the DoD/Navy standard forms format. However, there are some problems. Some of the forms have limited space to enter data (e.g., inadequate space to enter a vendor's address). Users would like the capability to modify the forms when necessary. Another problem is that some forms cover more than one screen. Rather than allowing the user to scroll through the full form, FASTDATA cuts the forms into separate screens. The user must jump back and forth between the screens to complete the document. A scrolling or wraparound capability would be more user friendly.

8. Upgrade Help Menu

Another common problem involved the help menu. The users complained that the menu was written in technical terms that are hard to understand. There are also many unexplained acronyms. This makes it difficult to train new users and increases the cost of using the system. Users would like the menu converted to simple English.

9. Training

Training was a problem for several people. It is intended that key personnel from each command receive one week of formal training. These key personnel will then train other personnel and supervise the implementation process for their respective commands. As discussed earlier, one command has not implemented the system because the comptroller did not feel adequately trained. Many others felt that training was largely received "on the job", which took a considerable amount of time. Thus, the system does not work well for personnel who are rotated frequently. FASTDATA technicians have performed some on-site training for commands that have implemented the system. The users would like to see more on-site training.

One of the major advantages of FASTDATA is that it was developed within DoD, which makes it free to any activity that wants to use it. Travel for on site visits makes the installation process easier. However, it greatly increases the overall cost. The programmers are willing to perform on site visits; funding is the issue.

E. SUMMARY

The interviews portrayed FASTDATA in a very positive light. Most users felt that the system was an indispensable asset to their operation. In general, they liked the overall format in which FASTDATA is organized. However,

most of them realize that the technology on which FASTDATA is based is quite old and that many upgrades are needed. Due to their familiarity with FASTDATA, most users preferred the prospect of upgrading FASTDATA to replacing it with a new system. Whichever alternative is selected, funding is the major obstacle.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY

This thesis examined the feasibility of implementing a single Navy-wide local financial management system for the general fund. Reflecting the current consolidation of systems at the Federal agency level and the elimination of duplicate efforts, if a single system could meet the needs of all activities, savings would likely be realized through standardization. This thesis used the FASTDATA local financial management system as a baseline for research. Secondary purposes of this thesis were to determine if FASTDATA could fill the requirement for a single Navy-wide system and, more specifically, whether FASTDATA should be implemented at the Naval Postgraduate School (NPS).

Research was conducted in two phases. The first phase studied the applicable literature in order to understand both the FASTDATA system and the Navy-wide finance and accounting structure. The second phase gathered opinion data from personnel who use the FASTDATA system at operational commands. This established the acceptability of the system.

Information was presented in three chapters. Chapter II provided an overview of governmental finance and accounting systems. Topics included a historical look at the decentralized, inefficient growth of governmental finance

and accounting systems; Federal regulations developed to force improvement in these systems; and DoD's actions taken to comply with these regulations. It further described DoD's migratory accounting system strategy and STARS, the system selected as the Navy's migratory official accounting system. It also discussed how this system did not meet the financial management needs of users at the local level. Chapter III covered the FASTDATA system. It discussed the development and current implementation of this system. The system's basic framework and procedures were presented. Chapter IV discussed the results of interviews held with operational users. It provided suggested system upgrades and comments from the system programmers on the complexity of these upgrades.

B. CONCLUSIONS

Virtually all Navy activities use the general fund to perform their mission. They are all required to record any transaction that affects these funds. Regardless of the command's size, location or mission, this basic data must be recorded. DFAS and the ASN(FM&C) have selected STARS/STARS-FL as the official Navy accounting system and have implemented this system at nearly all shore facilities. Each activity must have a local system which meets the criteria for entering data into STARS-FL. Thus, each activity performs the same basic data processing, inputting

data into the same official accounting program. These basic facts lead to the conclusion that a single Navy-wide local financial management system is not only feasible, but to use anything other than a single system would seem inefficient.

FASTDATA is currently one of the most widely used local financial management systems in the Navy. It provides the user with the capability to update all applicable records with the single entry of data. It allows the user to easily access and update their financial records. It performs the basic requirements that the activities need to monitor their funds and provides an easy interface with STARS-FL. System users are pleased with its architecture and performance. They feel that the system is a highly acceptable system. FASTDATA does have the potential to be the Navy's single local financial management system. However, the system does not incorporate the latest technology and needs considerable modernization.

The Naval Postgraduate School has performed many studies which have concluded that a new local financial management system is needed [Ref. 30:p. 1]. This fact is agreed to by all concerned. However, there is a debate as to whether NPS should implement the FASTDATA system or develop its own system. One argument is that the FASTDATA is available now, requires no funding to install, personnel have already received the required training and it is a proven system that is well-liked by users from other

activities. The other argument is that the system is based on outdated technology, does not perform all of the functions that the command requires and that a new system, built from the bottom-up, would better serve the organization and the users. This decision on which alternative to choose has not been made.

C. RECOMMENDATIONS

This thesis, and therefore these recommendations, are based exclusively on archival and opinion research. Therefore, it is important to note that before proceeding with these recommendations, a detailed cost/benefit analysis should be conducted for each alternative. Additionally, the recommendations cited here will require funding. In this time of down-sizing, funding is not readily available. However, in the long run, savings may be realized by reduced labor costs and decreased funds spent on "homemade" financial management systems. Research for this thesis revealed that several activities were sinking considerable funding into developing "homemade" systems. Those funds, as well as the innovative ideas from those activities could be pooled to upgrade FASTDATA.

The first recommendation of this thesis is to expand FASTDATA's implementation. The cost of reproducing and installing the system is minimal. However, the training costs may be substantial. Funding needs to be secured to

resume both in-house classroom training and on site training. Even with the system's current outdated technology, it is a very capable system and would improve operations at the majority of Navy activities. In the short run, the implementation of the current version of FASTDATA needs to continue. As new versions of the system are developed, it will be much easier to implement them when the users are already familiar with the basic system architecture.

It is also recommended that NPS proceed with implementing FASTDATA. The system is free, available now and has proven to be effective at many other organizations. It will alleviate many of the problems that currently exist. For those areas in which the system is inadequate, concerns should be addressed to the FASTDATA program management office. If it is deemed not to be feasible to include these capabilities into the FASTDATA system, a cost/benefit analysis should be performed to determine if a command specific modification could be incorporated.

Another recommendation is to upgrade FASTDATA to a Windows based system. The code needs to be rewritten to incorporate many of the modifications discussed previously. With technology advancing at an ever increasing rate, the Navy needs a system which can be upgraded as new capabilities are developed. Only by having a system that

incorporates the latest technology will the system continue to be viable.

It is also recommended that the FASTDATA program manager and the programming office develop and distribute specific guidelines on how modifications to the system are evaluated and incorporated. These guidelines should include procedures on how to make suggestions for modifying the system. This evaluation process should be capable of systematically performing cost/benefit analyses of suggested modifications and prioritizing approved system upgrades. The FASTDATA system will, in effect, never be completed. As technology and operational requirements continually change, the system will need to change as well. The only way that the system can remain current is to receive continual, timely feedback from the practitioners. Without change, any system will be outdated in a relatively short time.

Every activity in the Navy has to determine how to manage their funds at the local level. The proponents of developing a unique system at NPS have some very innovative ideas [Ref. 30]. Many other organizations are also investing time, money and talent to produce a quality local financial management system. The final recommendation of this thesis is for the ASN(FM&C) to direct a commission, possibly within the FASTDATA program management office, to pool these innovative ideas and funds. By pooling these resources, there is a much better possibility of developing

a system that is acceptable. FASTDATA could be thought of as a migratory system. As was done at the Navy level, cease spending money on other systems and consolidate the best ideas and effort on a single system. The project may not require much additional funding, if the current funding is spent efficiently. By establishing a single efficient effort, it is more likely that a technologically advanced, universally acceptable system will be produced.

APPENDIX A.
DFAS KEY ACCOUNTING REQUIREMENTS

1. General Ledger Control and Financial Reporting
2. Property and Inventory Accounting
3. Accounting for Receivable Including Advances
4. Cost Accounting
5. Accrual Accounting
6. Military and Civilian Payroll Procedures
7. System Controls (Fund and Internal)
8. Audit Trails
9. Cash Procedures and Accounts Payable
10. System Documentation
11. System Operations
12. User Information Needs
13. Budgetary Accounting

APPENDIX B.
FASTDATA SOURCE DOCUMENTS AND MEMORANDUM RECORDS

Source Documents Generated by FASTDATA

- DD-1348: Single Line Item Requisition Document
- DD-1348-6: Non-National-Stock-Numbered Requisition
- NC-2275: Order for Work and Services
- NC-2276: Request for contractual Procurement
- NC-2277: Voucher for Disbursement and Collection
- DD-282: DoD Printing Requisition Order
- NC-2061: Utility or Invoice Certification
- DD-1155: Purchase Order / Contract
- DD-448: Military Interdepartmental Purchase Request
- DD-1149: Requisition and Invoice, Shipping Document
- SF-1164: Claim for Reimbursement for Expenses on Official Business

Memorandum Records Entry Available in FASTDATA

- DD-1348: Single Line Item Requisition Document
- DD-1348-6: Non-National-Stock-Numbered Requisition
- NC-2275: Order for Work and Services
- NC-2276: Request for contractual Procurement
- DD-282: DoD Printing Requisition Order
- NP-1320/16: Military Travel

- DD-1610: Civilian Travel
- SF-44: Gross Level Fuel Chit
- DD-1556: Request for Training
- DD-448: Military Interdepartmental Purchase Request
- DD-1149: Requisition and Invoice, Shipping Document
- SF-1164: Claim for Reimbursement for Expenses on Official Business
- Fuel Chit
- GSA Document
- Civilian Labor
- Miscellaneous

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